CLAIMS

What is claimed is:

1. A method for auto-focus control, comprising:

determining a scene location;

setting an exposure length equal to an integer multiple of a period of the AC current typically used at the scene location;

taking a first exposure with a lens in a first position;

moving the lens to a second position;

taking a second exposure;

determining which lens position has a better focus measure.

2. The method of claim 1 where the scene location is determined by user input.

3. The method of claim 1 where the scene location is determined by a GPS device.

4. A method for auto-focus control, comprising:

determining a scene location;

synchronizing an exposure rate to the frequency of the AC current typically used at the scene location;

taking a first synchronized exposure with a lens in a first position;

moving the lens to a second position;

taking a second synchronized exposure;

determining which lens position has a better focus measure.

5. The method of claim 1 where the scene location is determined by user input.

6. The method of claim 1 where the scene location is determined by a GPS device.

7. A method for auto-focus control, comprising:

determining a presence of artificial illumination in the scene;

determining a frequency of intensity variations in the scene;

taking a first exposure with a lens in a first position, the first exposure synchronized with the frequency of intensity variations in the scene;

moving the lens to a second position;

taking a second exposure at the synchronized frequency;

determining which lens position has a better focus measure.

8. The method of claim 7 where the presence and frequency of the artificial illumination is determined by user input.

9. The method of claim 7 where the presence and frequency of the artificial illumination is determined by measuring the light from the scene for periodic variations.

10. The method of claim 9 where the periodic changes are variations in brightness.

11. The method of claim 9 where the light from the scene is focused onto a photo sensor and the periodic changes are variations in contrast.

12. The method of claim 7 where the frequency of the artificial illumination is determined by the geographic location of the scene.

13. A method for auto-focus control, comprising:

predicting at least one frequency for a variation in the illumination in the scene;

measuring light from the scene at a periodic rate, where the periodic rate is different than any of the predicted frequencies, using an exposure length that is different than any of the periods of the predicted frequencies;

detecting the presence of an artificial illuminant when the measured light from the scene contains periodic changes;

determining the phase and frequency of the periodic changes with FFT analysis of the sampled light;

synchronizing an exposure rate with the frequency of the intensity variations in the scene;

taking a first synchronized exposure with a lens in a first position;

moving the lens to a second position;

taking a second exposure at the synchronized frequency;

determining which lens position has a better focus measure.

14. A method for auto-focus control, comprising:

predicting a frequency for a variation in the illumination in the scene;

measuring light from the scene at a periodic rate using a first exposure length that is equal to the period of the predicted frequency;

re-measuring light from the scene at a periodic rate using a second exposure length that is equal to the period of a second predicted frequency;

determining the presence and frequency of the variation in the illumination in the scene when the variability of the measurements using the first exposure length is different than the variability of the measurements using the second exposure length;

synchronizing an exposure rate with the frequency of the intensity variations in the scene;

taking a first synchronized exposure with a lens in a first position;

moving the lens to a second position;

taking a second exposure at the synchronized frequency;

determining which lens position has a better focus measure.

15. An apparatus for auto-focusing a scene comprising:

a means for measuring light from the scene at a periodic rate using a predetermined exposure time;

a means for determining the presence and frequency of intensity variations from an artificial illuminant by examining the measured light from the scene for periodic intensity variations;

a means for focusing light from a scene;

a means for determining a focus measure for the scene synchronized with the frequency of intensity variations.

16. A digital camera comprising:

a photo sensor array, the photo sensor array configured to measure light from a scene at a periodic frequency using a predetermined exposure length;

a lens configured to focus the light from the scene onto the photo sensor array;

a processor, the processor configured to determine the frequency of intensity variations in the illumination of the scene by examining the measured light from the scene for periodic contrast variations, the processor also configured to synchronize at least two exposure, used in an auto-focus control, to the intensity variations in the scene.

17. The digital camera of claim 18 where the periodic frequency is close to a common AC frequency.

18. A method for auto-focus control, comprising:

determining a presence of artificial illumination in the scene;

determining a period of intensity variations in the scene;

setting an exposure length equal to an integer multiple of the period of the intensity variations in the scene;

taking a first exposure with a lens in a first position;

moving the lens to a second position;

taking a second exposure;

determining which lens position has a better focus measure.

19. The method of claim 20 where the presence and frequency of the artificial illumination is determined by user input.

20. The method of claim 20 where the presence and frequency of the artificial illumination is determined by measuring the light from the scene for periodic variations.

21. The method of claim 22 where the periodic changes are variations in brightness.

22. The method of claim 22 where the light from the scene is focused onto a photo sensor and the periodic changes are variations in contrast.

23. The method of claim 20 where the frequency of the artificial illumination is determined by the geographic location of the scene.